PTO/SB/21 (modified) Approved for use through xx/xx/xx, OMB 0651-0031
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE U.S. Department of Commerce Application Number 10/087,408 Patent and Trademark Office Filing Date March 1, 2002 TRANSMITTAL FORM First Named Inventor Xiaodong Huang (to be used for all correspondence during pendency of Group Art Unit Number filed application) 2881 Examiner Name Not Yet Known Total Number of Pages in This Submission Attorney Docket Number 22920-06460 **ENCLOSURES** (check all that apply) Fee Transmittal Form (in duplicate) Issue Fee Transmittal Check Enclosed Letter to Chief Draftsperson Return Receipt Postcard Formal Drawing(s): Response to Notice to File Missing Parts [] Sheet(s) of Figure(s) [] Assignment & Recordation Cover Sheet Appeal Communication to Board of Appeals and Declaration Interferences Power of Attorney Appeal Communication to Group Application Data Sheet (Appeal Notice, Brief, Reply Brief) Information Disclosure Statement & PTO-1449 Certified Copy of Priority Document(s) Copies of IDS Cited References After Allowance Communication to Group Request for Corrected Filing Receipt Request for Correction of Recorded Assignment Amendment/Response: [] Page(s)

Status Request Revocation and	Substitute Power of Attorney				- - - -
REMARKS: Total	pages does not include the total pa	ges of cited references	·		
	\$IGNATURE OF	ATTORNEY OR AGENT			
Signature:	Celen Vonde	~			
Attorney/Reg. No.:	Edward A. Van Gieson, Reg. No	o. 44,386	Dated:	8/27/02	
	CERTIFIC	ATE OF MAILING			_
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288 #6 PATENT PY 918-00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS:

Xiaodong Huang, Andreas Stintz, Kevin Malloy, Guangtian Liu,

Luke Lester & Julian Chent

APPLICATION NO.:

10/087,408

FILING DATE:

March 1, 2002

TITLE:

Quantum Dot Vertical Cavity Surface Emitting Laser

EXAMINER:

Not Yet Known

GROUP ART UNIT:

2881

ATTY. DKT. NO.:

22920-06460

CERTIFICATE	OF MAILING
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INFORMATION DISCLOSURE STATEMENT Under 37 CFR §§ 1.56 and 1.97-98

SIR:

Pursuant to the provisions of 37 CFR §§ 1.56 and 1.97-98, enclosed herewith is modified form PTO-1449 listing references for consideration by the Examiner. Enclosed is a copy of each listed reference that may be material to the examination of this application, and for which there may be a duty to disclose. The references enclosed with this Information Disclosure Statement are not cumulative.

The filing of this Information Disclosure Statement shall not be construed as a representation regarding the completeness of the list of references, or that inclusion of a reference in this list is an admission that it is prior art or is pertinent to this application, or that a search has been made, or as an admission that the information listed is, or may be considered to be, material to patentability, or that no other material information exists, and shall not be construed as an admission against interest in any manner.

This Information Disclosure Statement is being filed:

within three months of the filing date of the application, or date of entry into the national stage of an international application, or before the mailing date of a first office action on the merits, whichever event last occurred;

	befor	re the m	nailing of a first official action after the filing of a request for
	conti	nued ex	camination (RCE) under 37 CFR § 1.114;
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			individual designated under 37 CFR § 1.56(c) more than
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	that of	therwise	e closes prosecution in the application, and:
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		This a		on relies, under 35 U.S.C. § 120, on the earlier filing date of prior
		applica	ation No	o. [APPLICATION NUMBER], filed on [FILING DATE], and the
		referer	ices cite	ed therein are hereby referenced, but are not required to be provided
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•				nformation contained in this Information Disclosure Statement was
		cited in	n a comi	nunication from a foreign patent office in a counterpart application,
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				Respectfully submitted,
		,		Xiaodong Huang et al.
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				Edward A. Van Gieson, Reg. No.: 44,386 Fenwick & West LLP
				Two Palo Alto Square
				Palo Alto, CA 94306
				Tel.: (650) 858-7997
				Fax.: (650) 494-1417

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Attorney's Docket No. 22920-06460

Serial No. 10/087,408

Sheet 1 of 7

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Xiaodong Huang et al.

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Filing Date March 1, 2002

Group Art Unit Unassigned

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Attorney's Docket No. 22920-06460

Serial No. 10/087,408

Sheet 3 of 7

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Xiaodong Huang et al.

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	OTHER DOCUMENTS (Including Author	r, Title, Date, Pertinent Pages	Eta \
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Sheet 4 of 7

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•	Patent and Trademark Office	2292@;86460	10/087,408
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Sheet <u>5</u> of <u>7</u>

U.S. DEPARTMENT OF COMMERCE Attorney's Docket No. Serial No. (REV. 6-89) Patent and Trademark Office -22920-06460 10/087,408 INFORMATION DISCLOSURE CITATION Applicant Xiaodong Huang et al. Filing Date (Use several sheets if necessary) Group Art Unit March 1, 2002 Unassigned OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.) Mehuys, D.; Mittelstein, M.: Yariv, A.; Sarfaty, R.; and Ungar, J.E.; Optimised Fabry-Perot (AlGa)As Quantum-Well Lasers Tunable Over 105nm; Electronic Letters; Vol. 25, No. 2; January 19, 1989; pp. 143-145. Mirin, R.; Gossard, A.; and Bowers, J.; Room Temperature Lasing From InGaAs Quantum Dots; Electronics Letters; Vol. 32, No. 18; August 29, 1996; pp.1732-1734. Morton, P.A.; Ackerman, D.A.; Shtengel, G.E.; Kazarinov, R.F.; Hybertsen, M.S.; Tanbun-Ek, T.; Logan, R.A.; and Sergent, A.M.; Gain Characteristics Of 1.55 µm High_Speed Multiple-Quantum-Well Lasers; IEEE Photonics Technology Letters, Vol. 7, No. 8; August 1995, pp. 833-835. Mukai, K.; Nakata, Y.; Otsubo, K.; Sugawara, M.; Yokoyama, N.; and Ishikawa, H.; High Characteristic Temperature Of Near-1.3 µm InGaAs/GaAs Quantum-Dot Lasers; CLEO 2000 Conference; May 2000 pp. 345-346. Mukai, K.; Nakata, Y.; Shoji, H.; Sugawara, M.; Ohtsubo, K.; Yokoyama, N.; and Ishikawa, H.; Lasing With Low Threshold Current And High Output Power From Columnar-Shaped InAs/GaAs Quantum Dots; Electronics Letters; Vol. 34, No. 16; August 6, 1998, pp. 1588-1590. Mukai, Kohki; Ohtsuka, Nobuyuki; Shoji, Hajime; and Sugawara, Mitsuru; Growth And Optical Evaluation Of InGaAs/GaAs Quantum Dots Self-Formed During Alternate Supply Of Precursors; Applied Surface Science; Vol. 112; March 1997; pp. 102-109. Mukai, Kohki; Ohtsuka, Nobuyuki; Sugawara, Mitsuru; and Yamazaki; Susumu; Self-Formed *ln₀₅Ga₀₅*As Q*uantum Dots On GaAs Substrates Emitting At 1.3 μm;* Jpn. J. Appl. Phys. Vol. 33, Part 2, No. 12A; December 1, 1994; pp. 1710-1712. Newell, T.C.; Bossert, D.J.; Stintz, A.; Fuchs, B.; Malloy, K.J.; and Lester, L.F.; Gain And Linewidth Enhancement Factor In InAs Quantum-Dot Laser Diodes; IEEE Photonics Technology Letters; Vol. 11, No. 12; December 1999; pp. 1527-1529. Newell, T.C.; Li, H.; Eliseev, P.; Liu, G.T.; Stintz, A.; Malloy, K.J.; and Lester, L.F.; Broadening Mechanisms, Gain, And Low Linewidth Enhancement Factor In InAs Quantum Dot Lasers; Conference: CLEO 2000; May 2000; p. 363. Newell, T.C.; Li, H.; Stintz, A.; Bossert, D.; Fuchs, B.; Malloy, K.J.; and Lester, L.F.; Optical Characteristics And Low Linewidth Enhancement Factor in 1.2 µm Quantum Dot Lasers; Conference: 1999 IEEE LEOS Annual Meeting Conference Proceedings; LEOS'99; 12th Annual Meeting; IEEE Lasers And Electro-Optics Society 1999 Annual Meeting; November 8-11, 1999. Newell, T.C.; Varangis, P.; Pease, E.; Liu, G.T.; Stintz, A.; Malloy, K.; and Lester L.F.; 1.5 µm AlGainAs Quantum Well Lasers Grown By The Digital Alloy Technique; Conference: CLEO 2000; May 2000; pp. Nishi, Kenichi; Saito, Hideaki; and Sugou, Shigeo; A Narrow Photoluminescence Linewidth of 21 meV at 1.35 μm From Strain-Reduced InAs Quantum Dots Covered By In_{0.2}Ga_{0.8}As Grown On GaAs Substrates; Applied Physics Letters; Vol. 74, No. 8; February 22, 1999; pp. 1111-1113. Park, G.; Shchekin, O.B.; Huffaker, D.L.; and Deppe, D.G.; Very Low Threshold Oxide-Confined 1.3 μm GaAs-Based Quantum Dot Laser; CLEO 2000 Conference; May 2000; pp. 349-350.

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